**SWEATBITE**

**SAPIENZA UNIVERSITY OF ROME (ACSAI)**

**HCI REPORT**

This report is part of our project for the Human Computer Interaction class during our Erasmus mobility.

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**SweatBite** is a fitness and nutrition app designed to help users stay on track with their workouts and health goals by offering three features: workout calorie calculation, personalized snack suggestions, and visual goal monitoring. The app enables users to track calories burned during workouts, even without a smartwatch or phone on hand, while providing intelligent snack ideas tailored to their workout routines and fitness routine.

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**1. Introduction**

The first thing we did as a team is to think about an idea that integrates both the fitness and the nutrition app. Once we had a general concept, we started doing our research to better understand users’ needs, preferences, and what existing apps were lacking. We began by interviewing people from different backgrounds and routines so we can have a better view of our target audience. These interviews showed the challenges people face in their fitness journeys, the apps they currently use, and their level of satisfaction. After that, we made a questionnaire to have a better view from more people while at the same time we analyzed similar fitness and nutrition apps based on users feedback. Having a good amount of responses and interviews we made our conclusion about user needs and we moved on choosing the core tasks our app would include. Finally, we started prototyping and working on the final product of our app.

**2. Competitors Analysis**

A comprehensive competitor analysis and user research phase was carried out in order to determine the essential requirements and expectations of the users. During our survey about fitness and nutrition apps, we came across a variety of them. We chose to analyze some of them based also on the replies the users we asked gave us. Most of the apps have a common set of features that adapts to user needs about workout tracking, calorie counting, and meal planning. However, the responses from our survey revealed a few patterns and gaps in how these apps are used and what users expect. Many of them need a subscription to have the full experience and some of them are more complex designs. Below are some of the apps we observed:

### **2.1.0 Google fit:**

### First of all there are no snack suggestions. It is Health-focused, not personalized to fitness goals. Auto-tracks workouts, integrates with wearables, shows calories burned. Google Fit can be a bit confusing with too many features and no clear routine. Google Fit needs smartwatches or other apps to work fully. **2.1.1 MyFitnessPal:**

### When downloading it you have to enter a lot of data, even your country of origin. Also, you have to enter every meal and portion you eat. MyFitnessPal is mostly about **tracking what you eat.** The app has lots of features, menus, and numbers that can feel overwhelming, especially for beginners.

**2.1.2 Apple Health:**

Apple Health is an all-in-all fitness app with a variety of features. It tracks steps, users sleep schedule, state of mind and calories burned. If you don’t have a wearable all of them are calculated based on the sensors your phone has. The user can also add a workout he did, but there is no option for calculating the burned calories of the workout. The user must add both the exercise and the calories he burnt or either the kilometers he did. There is nothing about nutrition, it's strictly a Fitness App.

**2.1.3 Nike Training Club:**

Nike Training Club is designed for general fitness and offers a wide range of on-demand workouts including strength training, yoga, high-intensity interval training (HIIT), and mobility routines. The app provides structured programs tailored to different fitness goals. Users receive video guidance from professional Nike trainers, and many of the workouts require little to no equipment, making it accessible for home use. In some regions, NTC also includes additional content focused on nutrition, wellness, and mental health to support a more holistic approach to fitness.

**2.1.4 Withings:**

Withings App is helpful for tracking your body measurements like weight, body composition, heart rate, sleep, but also activity. It has goals, achievements and insights to help users reach their fitness goal. It can also be sync with other apps for better results. The user can also use it for health reports with doctors or whoever he wants. You need to pay a Withings Plus to have all the features and it doesn't provide anything about nutrition. As an app it seems a little bit confusing.

**2.1.5 LifeSum:**

Lifesum is a health and nutrition app designed to help users improve their diet and reach goals like weight loss, muscle gain, or simply eating healthier. It combines meal planning, calorie tracking, and personalized food suggestions based on your health goals, activity level, and dietary preferences. The user can add the meals he ate to reach his desired calories for his goal, the water he drank but also, he can choose a diet program to help him or just recipes for meals and snacks. For full access there is a monthly subscription that can prevent users from using it.

**3. Need Finding**

For the Need Finding, we used surveys and interviews both with real users and AI to get direct user feedback in order to gain a deeper understanding of the particular requirements of our target audience. Several crucial requirements were identified by this study. First and foremost, ease of use in tracking goals and calculating calories became a top priority, particularly for users who are not fitness enthusiasts. Below is the need summary from each technique used:

* Simplicity in Calorie tracking (lack of knowledge or apps too complicated)
* Personalized snack suggestions based on activity, goals, and what is available (most of them choose randomly what to eat before or after)
* Motivation Through Visible Progress (to keep consistency)
* Affordability & Accessibility (not wanting to pay to have simple features)

**3.2.1 From Interviews**

-To get a detailed view of the interviews you can go to the Interviews.pdf in the zip file. We made 17 interviews out of which 5 interviews were AI personas and below is a short analysis of them:

-Most participants reported exercising 3 or more times a week, with activities including gym workouts, walking, jogging, and occasional cycling or group fitness. A smaller group exercised less consistently but still made efforts to stay active.

-When it comes to calorie tracking, the vast majority do not currently track calories burned or consumed, primarily due to a lack of knowledge on how to do it, perceived complexity, or lack of motivation. Some users expressed interest in calorie tracking but wanted a much simpler or automatic solution, such as through wearables or photo-based food recognition.

-Nearly everyone eats either before or after a workout. However, most participants admitted to choosing food randomly, without a clear nutritional plan. Many noted they felt confused or unmotivated to figure out what to eat, especially when tired.

-In terms of app features, most users preferred simplicity. Many said they would avoid apps that are bloated with features they won’t use. Some of them also mentioned that progress tracking, visual achievements would help them stay consistent.

-All interviews showed interest in having the ability to see progress—whether in the form of achievements, consistency streaks, or personal improvements in energy, fitness, or body composition. Users said they were more likely to keep logging workouts and snacks if the app celebrated small wins or showed visual feedback over time.

**3.2.2 From Questionnaire**

(you can find the questionnaire here: [**https://docs.google.com/forms/d/1y5B5mnkKyZPtvZk\_QHWVtOARt8ZTguIUmHIE3DSsObA/edit**](https://docs.google.com/forms/d/1y5B5mnkKyZPtvZk_QHWVtOARt8ZTguIUmHIE3DSsObA/edit) )

we used Google Forms to collect the survey data and we got 111 responses and there feedback was analysed as :

-Most participants in our questionnaire are between 18-30 and exercise often, with the majority exercising approximately 3 times a week and the rest several times a month. The most common type of exercise for our audience is running/jogging and walking.

-Most responders do not currently track calories. Many do not feel the need to or are not aware of how this activity would benefit them. There is also a small portion of people that are incapable of tracking calories mainly because of the complexity of apps. This result indicates the need for a much simpler app that would be easy to use and learn for users of all ages. Also, it is highly important that the app motivates the users so they are more willing to use it and get familiar with the process of tracking calories and its benefits.

-The people who track their calories, either believe that their current method is very convenient, or they are indifferent about its efficiency. Some also find their method is quite inconvenient and especially in AI personas a somewhat convenient answer dominates.

-The importance of calories’ tracking varies through users. The majority believes that it is essential and some are not sure, while a big percentage thinks it is not of a big importance. This shows that there are plenty of users interested in this activity and determined to track their calories.

-Almost all users eat pre or after workout and believe that it is important to do so. However, the majority chooses randomly what to eat, making the suggestion of a snack pre/after workout an important task for our app. Most are lazy to search or never paid too much attention. Therefore, the snack recommendation will make it easier for users to balance their nutrition based on their exercise.

**4. Tasks**

After finding our 3 tasks we drew storyboards for each one that can be found in storyboards.pdf.

**4.1. Calorie Calculation After Workout:** By just choosing a workout type and modifying the workout duration users can estimate how many calories they burn in real time.

**4.2 Snack suggestion for Pre and After workout:** This task offers customized snack recommendations suitable for the pre- or post-workout period. The pre-workout snack is based on the intensity of the workout the user wants to perform. Meanwhile, the after workout suggestion is produced by the selection of one of the user's recently logged workouts.

**4.3 Goal setting:** Users can set 2 types of goals to monitor their progress. The first one is choosing how many calories the user wants to burn, either daily or weekly, while the second is setting a number of workouts he wants to achieve during a week.

**5. Prototyping**

Firstly, we drew some low-fidelity prototypes and then we started working in the figma platform to visualize how our app will look before coding it.

**5.1 Paper prototypes:** Paper prototypes that illustrated the app's fundamental features were made during the first design stage. You can find the paper prototypes in paperPrototypes.pdf in the zip file.

**5.2 The Development of Figma Designs:** As the project was developed, Figma was used to create digital prototypes. Based on user testing and cognitive walkthroughs using CWGPT, the design was changed several times.

**6. Features and App**

We developed our app using React Native with JavaScript and chose Expo for its convenience. Expo allows us to run the app as a local server on our PC and view the results in real-time on our phones using the Expo Go app. Details on how to run the code in your pc, and after that scanning the barcode with your phone to see the final app, are in the readme in the github folder.

<https://github.com/StefanosTzaf/SweatBite>

If you clone it locally, and follow the instructions of the ReadMe you can see the final app in your phone.

**7. Evaluation**

For the evaluation phase, we provided users with a fixed scenario in which both our app and Figma prototype were fully functional. Participants were asked to perform the tasks while thinking aloud, guiding us through their actions and telling us what they observed and thought at each step. This method helped us to discover both usability issues and deeper insights into user behavior and expectations. We also used the Sapienza function CWGPT to perform a cognitive walkthrough to both our first and last design. This helped us understand if the steps to complete a task are clear and visible to the users.

We went through several iterations between Figma prototyping and app development and testing them with users. After our second revision with the Professor we changed some important elements based on the comments. As for the users feedback, we made some functionality changes mainly about the snacks suggestions. Also, we found some usability issues and fixed them. Analytically, you can find notes on the users evaluation in the Evaluation.pdf.

Firstly, as we had chosen our app to be for Android phones we had to change the interface design to have Android-native elements like lists, tables, and modals to help usability and keep layout consistency. One of our changes was to shift from static to real-time calorie calculation, which made the experience more interactive and fun for the users. Some users had expressed confusion when transitioning between tabs, such as moving from the calorie calculation screen to the snack suggestions, without realizing it. To solve this, we changed it to users tapping to change to another tab.The snack suggestions were presented in the form of cards, making it simple for users to scroll through and select options. Initially, the user chose a snack and moved on. However, based on feedback from both our professor and users, we understood that it wasn’t obvious why the user had to choose a snack, so we removed the selection part and made it to just be a list of snacks. We made some more evaluations and from the feedback, revealed that the cards still appeared tappable but weren’t. Many users noted that they would prefer to be tappable, so we decided to make them tappable and provide more information about the snack. By tapping, the user now can see what exactly to eat, if it’s appropriate for some diets and the vitamins he gains. Finally, in the goal-setting section, users pointed out that saved workouts were not synchronized with the goal-tracking functionality. We fixed this so that saved workouts now appear in the goals section, making the task fully functional.

**8. Conclusion and Future work**

SweatBite offers an easy and efficient way of calculating your burned calories with a smart suggestion for snacks. The app was improved during iterations and usability tests. The app is not perfect and can have many more improvements for future development. For example, the use of AI to suggest snacks adjusted to users preferences and calories burned during a workout would improve the snack suggestion task to a better level. The accuracy of calorie tracking may also be increased by enlarging the workout input fields to enable more customizable data entry. Favorite snacks can also be added for personalization, taking into consideration what is currently in season (such as fruits). Workouts can be suggested not in alphabetical order, but based on their popularity or how frequently they are selected by the user. With these improvements, SweatBite could develop into a fully functional nutrition and fitness partner that helps users reach their health objectives with ease, inspiration, and pleasure.